Approximate feasibility in real-time scheduling

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Summary

In real-time scheduling, feasibility analysis aims at determining whether a task system that emits jobs at regular time intervals, is schedulable on a given set of resources such that all deadlines can be met. Computational hardness and uncertainty obstruct determining feasibility exactly. Therefore performance of approximate feasibility testing and scheduling algorithms for a given processor environment is measured by the speedup factor; the extra speed the processor(s) require to schedule a task system with such an algorithm, given that the task system is feasible if processor(s) run at unit speed. In this dissertation, feasibility tests and scheduling algorithms are given for various problem settings from real-time scheduling. Upper and lower bounds on the required speedup factors are shown.

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